

#### ABSTRACT OF THE DISCLOSURE

A current sense amplifier circuit for detecting a first current includes an input gain stage incorporating a feedback loop, a current mirror, a charge integration stage and a comparator. The first current is coupled to an input node of the input gain stage where the input gain stage operates to maintain the voltage at the input node at a substantially constant level. The current mirror is coupled to mirror the first current into a second current. The charge integration stage is coupled to integrate charge associated with the second current to develop a first voltage. The comparator is coupled to compare the first voltage to a reference level and providing an output signal. The comparator generates an output signal having a first value when the first current exceeds a predetermined threshold level and a second value when the first current is less than the predetermined threshold level.